

Wallace on 'Palæarctic' and 'Nearctic'.¹—Again Mr. Wallace comes forward in defence of "the six regions established by Dr. P. L. Sclater," which he still claims as "the most natural and convenient" that "have been established." The reason for this is that "of late years," as he says, "many eminent naturalists, both in America and Europe, have proposed other regions, though hardly any two of these agree with each other." While this latter claim may be true, they do practically agree in uniting "the Palæarctic and Nearctic Regions so as to form one new region." To refute this grave heresy is the purpose of Mr. Wallace's present paper, which, in his own opinion, he succeeds in doing in a very satisfactory manner. But we fear he has not succeeded to any great extent in convincing the heretics. He says, most truly, that "the reason why so much difference of opinion exists on this point, when the very same facts are before all the enquirers, seems to be that they treat the facts in different ways." And the way Mr. Wallace here treats them tends most effectually to mislead and obscure the real points at issue; besides, he makes several misstatements that have an important bearing on the case, as will be noted later.

Mr. Wallace thinks that "far too much stress is laid upon the comparatively small number of absolutely peculiar genera or families in the two temperate regions," since, in his opinion, "the facts clearly show that the differences very far surpass the resemblances." In proof of this he tabulates the families and genera of the mammals and the land birds of the two regions, to show which are common to the two and which are peculiar to one or the other. From these tables he educes statistics which, as employed by him, appear to make an excellent showing for his side of the controversy. But to do this he necessarily ignores certain very fundamental facts and principles. No reference is made, for example, to the eminently homogeneous character of the life of the whole northern half of the northern hemisphere, nor to the fact that the differentiation of the two regions—'Palæarctic' and 'Nearctic'—is almost wholly limited to their warmer portions; nor to the fact that quite a percentage of the types given by him as peculiar to one or the other of these regions are merely intrusive forms that extend from the tropics northward just a little way into the southern border of his two regions. Furthermore, as regards especially the mammals, about one-ninth of the genera given as peculiar to either the 'Nearctic' or 'Palæarctic' should be transferred to the column of "common to both regions," as for example three of his six genera of Pinnipeds. Besides, no account appears to be taken of the important fact that in comparatively recent geological times the life of the 'Palæarctic' and the 'Nearctic' was much more closely related than at present.

Mr. Wallace further claims that the differences between the 'Nearctic' and the 'Palæarctic' "are, in fact, fundamental, and are far greater than

¹ The Palæarctic and Nearctic Regions compared as regards the Families and Genera of their Mammalia and Birds. By Dr. Alfred Russell Wallace, F. R. S. Natural Science, Vol. IV, June, 1894, pp. 435-445.

can be found in the separate halves of any of the other [zoölogical] regions, unless they are so divided as to be very unequal in area or to present very great differences in climate. But the Palæarctic and Nearctic Regions are, roughly speaking, equal in area." As to the latter statement, a glance at a map of these regions shows at once that the land area of the 'Palæarctic' is fully *three times* that of the 'Nearctic.' We are glad to see here, however, a tacit admission that climate may have something to do with the distribution of life. As to the other allegation, if Mr. Wallace will make the same kind of comparison between his Mediterranean and Manchurian 'Subregions' as he makes between his Palæarctic and Nearctic 'Regions,' he will find as high, and probably a much higher, ratio of difference than he so ingeniously figures out for the latter; it being in these areas also, that the chief differentiation of the 'Palæarctic' from the 'Nearctic' occurs. Of course Mr. Wallace would not think of contrasting the northern and southern halves, respectively, of his Nearctic and Palæarctic, owing to the contrast of climate, but should he be induced to do so he would find not only a far greater contrast between them than he now finds between 'Nearctic' and 'Palæarctic,' but that the northern half of the 'Palæarctic' has a far closer resemblance to the northern half of the 'Nearctic' than it has to the southern half of the 'Palæarctic.' (*Cf.* Bull. Am. Mus. Nat. Hist., IV, 1892, pp. 208-211.)

Finally Mr. Wallace works himself up to the claim that the 'Palæarctic' and 'Nearctic' Regions, in comparison with other 'Regions,' "are really exceptionally distinct. They are certainly much more distinct than are the Oriental and Ethiopian Regions, and are probably quite as distinct as are any two conterminous regions." We have already intimated how this conclusion is reached. We will only say in conclusion that we regard the so-called Oriental and Ethiopian 'Regions,' and the Palæarctic and Nearctic 'Regions,' as life areas of the second rank,—not as primary areas, as Mr. Wallace does,—the former together forming an Indo-African Realm, and the latter a North Temperate Realm, both being areas of primary grade, and their components respectively areas of secondary grade. (*Cf.* Bull. U. S. Geogr. and Geol. Surv. Terr., Vol. IV, No. 2, 1878.) Of course, our North Temperate Realm is equivalent to the 'Holarctic' of Newton and some other recent writers, who are unable to see the propriety of longer recognizing the 'Palæarctic' and 'Nearctic' as distinct primary regions. The case of Palæarctic and Nearctic all turns on the question of whether life areas shall be laid out in such a way as to give 'convenient and easily-remembered boundaries,' regardless of other contingencies, or whether they shall be based on the actual conditions of life, and their boundaries be so regulated as to conform to, and illustrate, the facts of geographic distribution.—J. A. A.

Publications Received.—Bendire, Charles. Descriptions of Nests and Eggs of some New Birds, collected on the Island of Aldabra, Northwest